

## Drought conditions call for water-wise gardening

by Diana Duff  
*Special To West Hawaii Today*

Sunday, January 31, 2010 6:57 AM HST

Most of Hawaii Island is experiencing a drought. Many gardeners and farmers have taken up their hoses and are watering wilting plants and trees that have survived for years without irrigation. Water bills are soaring.

The National Weather Service reports "An El Nino-related pattern ... became established over the Hawaiian Islands during the month of December ... Severe drought persists over portions of the North Kona, South Kona and Ka'u districts." The pattern is expected to continue until spring.

El Nino conditions occur every three to seven years. It was its occurrence along the west coast of South American during the Christmas season that inspired the name "El Nino" for the Christ Child. The condition involves changes in tropical wind directions over the Pacific and abnormally warm ocean temperatures, which disrupt weather patterns throughout the tropics, often for four to six months.

This year's El Nino has caused parts of the Big Island to be declared an agricultural disaster area, making many farmers eligible for low-interest emergency loans from the U.S. Department of Agriculture's Farm Service Agency. Information on aid is available online at [disaster.fsa.usda.gov](http://disaster.fsa.usda.gov) or by calling 933-8381, ext. 8340

With global warming promising more dry times, it's time to start imagining ways to garden that use less water. Established trees that have survived many years on seasonal rainfall patterns will probably survive this long dry spell, but newer plantings may suffer. This is not the time to buy thirsty plants to install in your garden. Start thinking xeriscape gardening with drought-tolerant species and techniques that require less water.

Dual purpose planting is definitely a good xeriscape practice. Consider using our valuable water resources on plants that are attractive, as well as useful for food, medicine, construction or crafts.

If you are planting seeds, do so in small pots or seeding trays placed on drainage trays so that water is not wasted but saved for future watering. You may also want to consider planting the resulting seedlings into larger trays or pots rather than into your garden.

Container gardening is an excellent way to conserve water. The water you apply stays in the immediate root zone of your containerized plants, requiring less water. Many plants do well in pots and, in some cases, production can be expanded and better controlled when contained.



Tropical gardening student Lonnie King created his own backyard containers based on plans he found at [seattleoil.com/Flyers/Earthbox.pdf](http://seattleoil.com/Flyers/Earthbox.pdf). Container gardening is an excellent way to conserve water. The water you apply stays in the immediate root zone of your containerized plants, requiring less water. - Lonnie King | Special To West Hawaii Today



Click Photo to Enlarge

The citrus leaf miner's trails are often transparent so that you can see the larva inside the leaf. - [ucdavis.edu](http://ucdavis.edu)

Herbs are especially well-suited to pot gardening and can be planted attractively in the garden, as well as on your lanai or in your home. Consider drought tolerant specimens like oregano, rosemary, sage and thyme. Lavender, borage, fennel and chives can also be cultivated with very little water.

Greens and lettuces grow well in containers, providing beauty and food. They can be attractive in window box containers in a sunny window, on your lanai or in your garden. During periods of drought, tropical greens like Okinawan spinach, with purple-backed leaves, as well as low growing tree spinach, can add charm while saving water and providing food.

Beans also grow well in pots. They not only provide you with a protein source but they also gather nitrogen from the air, adding it to the soil in the pot. Many sizes, colors, shapes and tastes are available in the bean family. Try snow peas, winged beans or purple string beans to add interest to your garden and your table.

Potatoes, squashes, tomatoes and peppers also can be grown successfully in pots and can produce well with minimal water. Some tropical trees also thrive in dry times as potted plants. Large half barrels or 15-gallon pots can contain vegetables, as well as dwarf citrus varieties that will produce well year after year.

In containers, use soil that holds water well and provides nutrition. Mixing native soil with organic matter like compost and topping the soil

with mulch can greatly improve growth and production. You can also consider augmenting the water you use by making it into compost tea, adding nutrition as you water.

Whether you water manually or by automated irrigation, be sure your system delivers only the amount of water your plants need. Though a drip system is the most water conserving way to irrigate, it must be well-designed and properly maintained to keep plants healthy in dry times.

However you decide to deal with drought in your garden, remember that water is a precious resource in Hawaii. Keeping your water use under control is a favor to your plants, your purse and our island environment.

---

### Tropical gardening helpline

**Barbara and Doug ask:** What can I do about the leaf miners that are attacking my plants?

**Answer:** Barbara's parsley is affected. Doug's citrus trees have been attacked. The twisty trails that leaf miners create are the feeding pattern of the larva of a small insect in the genus *Liriomyza*. Many species exist -- all with different host plants -- but their larvae all leave similar distinctive trails.

The adult lays her eggs on the leaves of the host plant. When the young larva emerges, it feeds on the tissue between the upper and lower surfaces of the leaves creating the distinctive trails. Damage to the plant is usually minimal but in severe infestations, the plant's ability to photosynthesize can be compromised. Plants are rarely killed by leaf miners.

The leaf miner lifecycle takes about two weeks. Interruption of the cycle at any point will help to reduce the infestation.

Removing the affected leaves gets rid of the existing miners before they pupate into adults that will lay more eggs. Mature larvae leave the "mines" they have created and drop to the ground to pupate. Placing plastic trays under affected plants to collect and destroy the pupae is another way to arrest the leaf miner lifecycle.

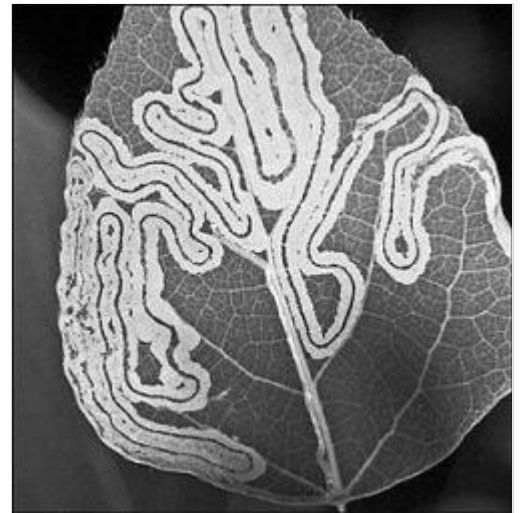
Spreading a floating row cover over susceptible plants can prevent the adult from landing and laying eggs. Plants that have been overwatered or overfertilized are more susceptible to insect attack. Try to give your plants just the amount of water and nutrition they need.

Very few insecticides are effective against leaf miners and systemic insecticides are not recommended for food crops. Since you want to encourage the predator, a small parasitic wasp, to come feed, it is best not to apply any insecticide. Applying a contact insecticide on the leaf's surface once the miners are in the tissue of the plant will be ineffective.

If damage is severe, you may be able to prevent the adults from laying eggs by spraying a low-toxic insecticide like one containing neem to kill the adult fly. Some pheromone traps have been developed recently. Check online for availability of traps that will attract the specific species that is causing problems in your garden.

For gardening questions, consult with master gardeners and tropical gardening advisers from 3 to 6 p.m. Mondays at the Kona Outdoor Circle at 329-0462 or 9 a.m. to noon Thursdays at the University of Hawaii Cooperative Extension Service at 322-4892 and Tuesdays and Fridays at UH CES in Hilo at 981-5199.

**Duff is an organic farmer in Captain Cook and the Kona Outdoor Circle education director.**



[Click Photo to Enlarge](#)

Different species of leaf miners leave squiggly trails on the leaves of many different plants. - North Mobile Garden Society